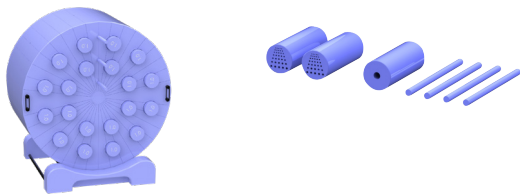# SMART QA:
RADIXACT® TREATMENT DELIVERY SYSTEM

Accuray is pleased to offer quality assurance (QA) packages for the Radixact® Treatment Delivery System to support installation and routine procedures required for maintaining proper system functionality.

Standard Quality Assurance Package
(INCLUDED WITH NEW RADIXACT® SYSTEMS)
This kit includes phantoms and ion chambers for routine machine and patient-specific QA tests specified by AAPM TG-148, as well as density model creation for planning and assessments of MVCT and kVCT image quality.

Advanced TQA™ Software
(INCLUDED WITH NEW RADIXACT SYSTEMS)
A smart calendar-based productivity tool that simplifies collection and analysis of machine quality assurance tests. Advanced TQA leverages on-board detectors and automatically analyzes data to provide quantitative comparisons between expected and measured system performance characteristics.

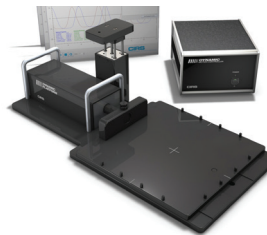| Pass						
Item Name	Status	Value	Unit	Low Pass	High Pass	Tolerances
Exit Detector Flatness (RMS)	●	0.21281	Percent	-1	1	
Exit Detector Output Constancy	●	100.1	Percent	99	101	
Monitor Chamber Output Constancy	●	100.07	Percent	99	101	
Pulse By Pulse Cone Variation	●	0.095742	Percent	-2	2	
Pulse By Pulse Dose1	●	0.52653	Percent	-2	2	
Pulse By Pulse Exit Detector Average	●	0.30283	Percent	-2	2	

Beam Measurement & QA Package
(Water Tank Kit) This dosimetry package includes a Radixact compatible water tank phantom, electrometer and beam data acquisition and analysis software. Kit is used to verify beam parameters after installation and annually thereafter.
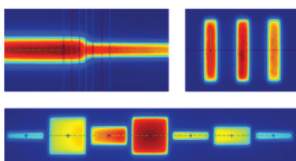
CIRS Dynamic Platform for Synchrony®
Provides a user-friendly solution for tasks associated with tumor motion and patient positioning on Radixact. The device enables precisely controlled inferior-superior motion. When paired with the Tomo-Phantom HE and fiducial plugs, this solution is used to verify that the system can accurately deliver Synchrony plans and enables full end-to-end QA for Synchrony.
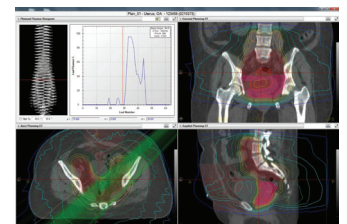
RITG148+ or RIT Complete Film Analysis Software
RITG148+, precise and comprehensive software built to perform all machine and imaging QA analyses; includes all film alignment QA tests required by AAPM TG-148, as well as the ability to produce reports and trends.

RIT Complete includes all of the features of RITG148+, as well as analysis tools for patient-specific QA.

Delivery Analysis™ Software
Standalone software application that automates the collection of treatment delivery data and Synchrony 2D kV images, allowing for quantitative comparisons between planned and measured procedures. Powerful visualization tools help verify consistency for every treatment fraction delivered, providing actionable insights to help ensure all treatments stay on track.

Radixact®

Item	Description	Part Number	Manufacturer
Standard Quality Assurance Package	Includes the following: • Ion chambers with ADCL calibration (includes 10 m cable) 　- Two Exradin A1SL thimble ion chambers 　- One Exradin A17 CT ion chamber • Solid Water® HE Phantom (10 blocks total) 　- 55x15x5 cm, no holes (1 block) 　- 55x15x5 cm, drilled cavity at 1 cm depth for A1SL ion chamber (2 blocks) 　- 55x15x2 cm, no holes (2 blocks) 　- 55x15x2 cm, two drilled cavities at 1 cm depth for A1SL ion chamber (1 block) 　- 55x15x1 cm, no holes (2 blocks) 　- 55x15x0.5 cm, no holes (2 blocks) • Tomo-Phantom HE (Cheese Phantom) • Density and resolution plugs	N/A *Included with new Radixact Systems.*	Standard Imaging Gammex Gammex Gammex
Advanced TQA™ Package Results are available via Web browser. Multiple Radixact® and TomoTherapy® Systems are supported.	Includes the following: • Advanced TQA Software license • Aluminum Step Wedge phantom *Note: Must have either H-1006-000-000 or 104940-000 in order to use all of the QA modules included with Advanced TQA Package.*	1050353-000 *Included with new Radixact Systems.*	Accuray
Delivery Analysis™ One Delivery Analysis Workstation can support multiple Radixact and TomoTherapy Systems connected to the same iDMS®Data Management System.	Includes the following: • Delivery Analysis Software • Delivery Analysis Workstation *Note: Delivery Analysis v2.3 and higher is compatible with RayStation plans.*	1033485-000 *Included with Radixact X9 Systems. Compatible with all Radixact Systems.*	Accuray
Beam Measurement & QA Package (water tank kit) If site has a Radixact compatible water tank will need to purchase TomoElectrometer with Beam Measurement software separately to perform routine QA tests and take advantage of Advanced TQA Software features.	Includes the following: • TomoScanner Water Tank (two-dimensional) • TomoElectrometer (8 channels), with ADCL calibration • TEMS Beam Analysis software *Note: A PC is not included; the software may be installed on a PC with a Microsoft® Windows® 7 or 10 operating system. For additional PC requirements contact an Accuray representative.*	H-1006-0000-000 *All sites need a Radixact compatible water tank*	Standard Imaging
TomoElectrometer with Beam Measurement Software If the site has a water tank that is compatible with the Radixact System, will need to purchase this package to perform routine QA tests and to take advantage of Advanced TQA Software features.	Includes the following: • TomoElectrometer (8 channels), with ADCL calibration • TEMS Beam Analysis software *Note: A PC is not included; the software may be installed on a PC with a Microsoft® Windows® 7 or 10 operating system. For additional PC requirements contact an Accuray representative.*	104940-000	Standard Imaging
RITG148+ or RIT Complete Software License	Includes the following: • RITG148+ or RIT Complete software license • One-year Product Maintenance Program agreement from RIT 　(renewal may be purchased from RIT by customer, at customer discretion) *Note: A PC is not included; the software license may be installed on any PC meeting the minimum system requirements (see www.radimage.com). Overhead Laser test on the Radixact System requires large, 12.8" x 17" (32.5 cm x 43.2 cm) gafchromic film; will need scanner to accommodate film size.*	1047524-000 or 1051614-000 *Strongly recommend purchase of one of the RIT software packages for each clinical site.*	RIT
CIRS Dynamic Platform for Synchrony®	Includes the following: • CIRS Dynamic Platform • CIRS Motion Control Software *Note: A PC is not included; the software license may be installed on any PC meeting the minimum system requirements (see www.cirsinc.com).*	1067179-000	CIRS

I = Installation **D** = Daily **M** = Monthly **Q** = Quarterly **A** = Annually **O** = Other **P** = Patient Specific QA

Item	Use	Accuray Purchaseable	I	D	M	Q	A	O	P
A1SL Ion chamber	Static output and PDD consistency Beam profiles MVCT & kVCT dose Completion procedure check Absolute dose calibration	Included	✔	✔	✔	✔	✔	✔	✔
A17 Large volume ion chamber	Y-jaw alignment TQA™ Jaw Sweep - Dynamic Jaws Water tank reference	Included	✔				✔	✔	
Tomo-Phantom HE (Cheese Phantom)	Output calibration plans CT number calibration Image quality assessment MVCT dose	Included	✔	✔	✔	✔	✔	✔	✔
Density and resolution plug set	Density model creation Image quality assessment	Included	✔		✔				
Solid Water® HE Phantom	Static output and PDD consistency Longitudinal profiles Build-up (e.g. for film alignment tests)	Included	✔	✔	✔	✔	✔	✔	
Advanced TQA™ Software and Step Wedge	iDMS® calendar-based management of QA activities Perform & report semi-automated routine QA tests Measures MVCT and kVCT image quality performance Water tank beam analysis	Included	✔	✔	✔	✔	✔	✔	
Delivery Analysis™ Software	Patient plan delivery verification: MLC performance, delivery visualization, 3D dose calculation, results dashboard Ability to review Synchrony® 2D kV snap shots	Yes *(Included with Radixact® X9 System)*						✔	
Water tank	Beam profiles *(transverse, longitudinal, PDD)*	Yes	✔				✔	✔	
Beam data analysis software	Water tank beam data collection and analysis software	Yes	✔				✔	✔	
Electrometer	Absolute dose calibration Beam profile measurement Alignment checks	Yes	✔	✔	✔	✔	✔	✔	✔
Film analysis software (RIT G148+)	Analyzing alignment film	Yes	✔		✔	✔	✔	✔	
Film analysis software (RIT Complete)	Analyzing alignment and patient QA film	Yes	✔		✔	✔	✔	✔	✔
CIRS Dynamic Platform (Synchrony® QA)	Pair with Tomo-Phantom HE and fiducial plugs for end-to-end QA Synchrony plan verification	Yes	✔						✔
Film digitizer	Medium film, 7.9"x9.8" (20 cm x 25 cm) sufficient for most machine QA tests Large gafchromic film, 12.8"x17" (32.5 cm x 43.2 cm) required for overhead laser test; will need digitizer to accomodate film size	No	✔		✔	✔	✔	✔	✔
Digital barometer	Absolute dose calibration *(for ion chamber)*	No	✔	✔	✔		✔	✔	✔
Thermometer	Absolute dose calibration *(for ion chamber, diode)*	No	✔	✔	✔		✔	✔	
Level	Couch alignment and laser alignment	No	✔		✔		✔		
Survey meter	Radiation surveys	No	✔				✔		

Radixact®

I = Installation **D** = Daily **M** = Monthly **Q** = Quarterly **A** = Annually **O** = Other **P** = Patient Specific QA

Item	Use	Accuray Purchaseable	I	D	M	Q	A	O	P
Workstation/laptop	Operation of TEMS Beam Analysis and RIT film software	No	✔	✔	✔	✔	✔	✔	✔
Film (requires RIT$_{G148+}$ or RIT Complete software)	Completion procedure check Patient QA Alignment films	No	✔	✔	✔	✔	✔	✔	✔
QA array device (Planar or 3D)	Machine QA and patient QA	No		✔	✔				✔
ScandiDos Delta⁴ with HexaMotion Platform (Synchrony® QA)	Synchrony patient QA *Note: Can be used as an alternative to the CIRS solution*	No							✔
Small diameter image quality phantom	Image quality assessments for 270 mm field of view with ClearRT™ Max - optional	No	✔	✔	✔	✔	✔	✔	✔
Small diameter density plug phantom	Creating density models for 270 mm field of view with ClearRT Max - optional	No			✔		✔		

For more information, please contact your Accuray sales representative.

Please note: *Accuray recommends that quality assurance packages be ordered at least 10 weeks before system acceptance. Third Party Products: Accuray does not support or service products that are identified in the table above as being manufactured by third parties. Such products are designed, tested, and manufactured by such third-party vendors. Accuray makes no representations or warranties, express or implied, with respect to such products.*

Radixact®